Review Article

Safety of Acupuncture in Patients Receiving Anticoagulant or Antiplatelet Therapy: An Updated Systematic Review of Bleeding-Related Adverse Events

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ABSTRACT

Background: Acupuncture is used in patients with pain, neurological disorders, cancer-related symptoms, and other chronic conditions in which anticoagulant or antiplatelet therapy is frequently prescribed. The practical concern is whether needling adds a clinically important bleeding risk. This study was done to update and narratively synthesize the available clinical evidence on bleeding-related adverse events following acupuncture in patients receiving anticoagulant or antiplatelet therapy. **Methods:** PubMed/MEDLINE, PubMed Central, Europe PMC, the Directory of Open Access Journals, Google Scholar, Semantic Scholar, ClinicalTrials.gov, the World Health Organization International Clinical Trials Registry Platform, publisher websites, and citation lists were searched through 22 May 2026. Human primary reports were eligible when antithrombotic exposure, percutaneous acupuncture, and a bleeding-related safety outcome could be verified. Because of substantial heterogeneity in study designs, denominators, exposure definitions, and outcome measures, findings were synthesized narratively without meta-analysis. **Results:** Nine reports were included: five observational reports and four case reports. Routine clinical studies generally reported no bleeding or brief, self-limited microbleeding. In a prospective study, mild bleeding-related events were not more frequent in exposed patients than in unexposed patients. A national Taiwanese analysis of 13,447,563 sessions found a modest association between anticoagulants and minor bleeding, but no statistically significant association with major bleeding; antiplatelet therapy was not significantly associated with post-acupuncture bleeding. Four case reports described clinically important intramuscular, intra-abdominal, or anatomically confined hematomas, some of which required surgical treatment. **Conclusion:** Acupuncture appears to have a low risk of major bleeding in patients receiving antithrombotic therapy when appropriate needle depth, anatomical site, and individual bleeding risk are considered.

Key words: Acupuncture Therapy, Anticoagulants, Platelet Aggregation Inhibitors, Hemorrhage, Hematoma.

Acupuncture is widely used for pain management, rehabilitation, supportive oncology, and other chronic conditions, including among patients receiving antithrombotic therapy. Anticoagulants, including warfarin and direct oral anticoagulants, reduce coagulation, whereas antiplatelet agents inhibit platelet aggregation; therefore, needle-induced tissue injury may theoretically increase the risk of prolonged bleeding, bruising, or hematoma formation. Although bleeding and hematoma are recognized adverse events of acupuncture, serious complications are uncommon [1–4].

Large prospective studies have reported that minor bleeding and hematoma are among the more common transient adverse events associated with acupuncture, whereas serious complications are rare [1–4].

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However, these studies do not consistently distinguish patients receiving antithrombotic therapy from those who are unexposed. A systematic review published in 2015 concluded that acupuncture appeared to be safe in anticoagulated patients when appropriate needling depth and anatomical location were used, although the available evidence was limited [5]. Minor bleeding and hematoma are among the most frequently recorded transient adverse events associated with acupuncture, although their reported frequency varies according to surveillance methods, treatment setting, and the denominator used. In a large prospective observational study involving 229,230 patients, bleeding or hematoma was reported in 6.1% of participants, whereas serious complications were uncommon [2].

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A later systematic review similarly concluded that serious acupuncture-related adverse events were rare, while bleeding, pain, and symptom aggravation accounted for a substantial proportion of reported events [3]. A multicentre Japanese survey also documented subcutaneous bleeding or hematoma but reported no serious adverse events during the observation period [4].

Subsequent observational studies have provided additional evidence involving warfarin, antiplatelet agents, and direct oral anticoagulants, while a large population-based study has provided further data on bleeding outcomes. Nevertheless, clinically important hematomas and internal bleeding have continued to be reported. The present review therefore aimed to update the clinical evidence on bleeding-related adverse events following acupuncture in patients receiving anticoagulant or antiplatelet therapy, with particular emphasis on bleeding severity, comparative risk, and potential clinical risk modifiers.

2. METHODS

2.1 Review design and reporting

This systematic review was structured in accordance with the PRISMA 2020 statement [6]. Narrative reporting followed the principles of the Synthesis Without Meta-analysis guideline because statistical pooling was not clinically or methodologically appropriate [7]. The review was not prospectively registered.

2.2 Review question

Among human participants receiving anticoagulant or antiplatelet medicine at the time of treatment, what bleeding-related adverse events have been reported after percutaneous needle acupuncture, and how do outcomes compare with patients not receiving these medicines when a comparator is available?

2.3 Eligibility criteria

Table 1. Eligibility criteria of the included studies

Domain	Inclusion criteria	Exclusion criteria
Population	Human participants actively receiving an anticoagulant, antiplatelet agent, or both at the time of acupuncture.	No active medication exposure; isolated thrombocytopenia or coagulation abnormality without the required drug exposure.
Intervention	Body, scalp, auricular, manual, or electroacupuncture involving percutaneous acupuncture needles.	Acupressure, laser acupuncture, injection acupuncture, bloodletting, acupotomy, or dry needling not presented as acupuncture.
Outcomes	Blood spot, prolonged bleeding, bruising, ecchymosis, hematoma, internal hemorrhage, major bleeding, or other adverse events reported alongside bleeding surveillance.	Efficacy-only reports without extractable safety information.
Design	Prospective or retrospective observational studies, clinical trials with extractable medication-specific safety data, case series, and case reports.	Reviews, editorials, commentaries, protocols, animal studies, and laboratory studies.

2.4 Information sources and search strategy

The public-source search covered PubMed/MEDLINE, PubMed Central, Europe PMC, the Directory of Open Access Journals, Crossref-linked publisher pages, Google Scholar, Semantic Scholar, ClinicalTrials.gov, and the World Health Organization International Clinical Trials Registry Platform. Backward and forward citation searching was conducted. The core concept combined acupuncture terms with anticoagulant and antiplatelet terms and bleeding or safety outcomes.

2.5 Study selection and reviewer process

Search results were imported into Mendeley for reference management and duplicate removal. After 31 duplicate records were removed, two reviewers independently screened the titles and abstracts of 93 records. Twenty-two reports were sought for retrieval, of which six could not be retrieved. The remaining 16 full-text reports were assessed independently against the predefined eligibility criteria. Disagreements were resolved through discussion, and unresolved disagreements were adjudicated by a third reviewer. Reasons for full-text exclusion were documented systematically.

2.6 Data extraction

The extraction framework recorded country, clinical setting, study design, participant and treatment counts, antithrombotic exposure, acupuncture characteristics, outcome definition, surveillance window, frequency and severity of bleeding, management of adverse events, comparative estimates, and

methodological limitations. Where studies reported several denominators, the original denominator was preserved rather than converted into a common rate.

2.7 Outcomes

The primary outcomes were major bleeding, internal hemorrhage, clinically significant hematoma, transfusion, surgery, hospitalization, neurological compromise, or death. Secondary outcomes were microbleeding, prolonged superficial bleeding, bruising, ecchymosis, and other adverse events recorded during bleeding surveillance. Major and minor categories were interpreted according to each report because a uniform definition was not available across the evidence base.

2.8 Synthesis methods

The evidence mixed single-patient reports with hospital chart reviews, a prospective cohort, and national claims data; exposure ranged from warfarin and heparin to direct oral anticoagulants and antiplatelet therapy; and outcomes were observed immediately after needle removal, the following day, or within 14 days. Narrative synthesis was organized by minor bleeding, major or clinically important bleeding, medication class, and risk modifiers. Findings were interpreted with greater weight given to comparative and prospective evidence than to uncontrolled case reports. Methodological limitations of the included reports were considered narratively during evidence synthesis; no formal risk-of-bias or critical appraisal tool was applied.

3. RESULTS

3.1 Study selection

After duplicate removal and preliminary screening, 16 potentially relevant reports underwent detailed eligibility assessment. Seven reports were excluded: five were reviews, editorials, or commentaries, and two examined an ineligible intervention or population. Nine primary reports met the eligibility criteria and were included in the narrative synthesis. Figure 1 shows the PRISMA diagram demonstrating the identification of studies for the present review.

3.2 Characteristics of included reports

The nine reports were published between 2005 and 2023 and included five observational reports and four case reports. Four reports came from the Republic of Korea, with one each from China, Japan, Taiwan, the United Kingdom, and the United States. The observational evidence ranged from a 229-patient hospital series to a national database containing 821,946 participants and 13,447,563 acupuncture sessions. The case reports described abdominal, hand or wrist, calf, and buttock or thigh bleeding events.

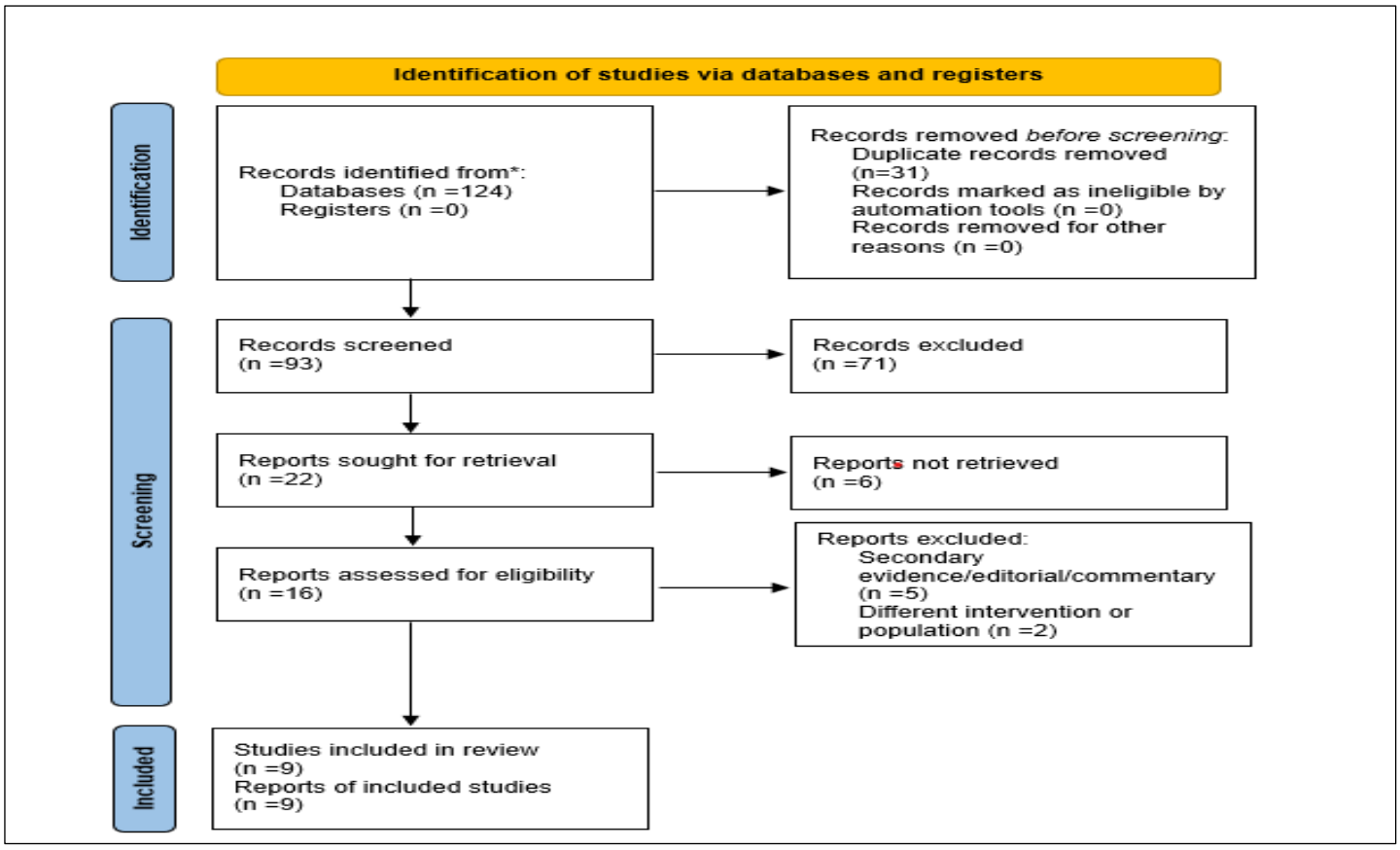


Figure 1. PRISMA 2020 flow diagram

Table 2. Characteristics and Main Findings of Included Reports

Study	Design and setting	Exposure and sample	Acupuncture or assessment	Main safety findings	Key methodological limitations
Lee et al. (2005) [14]	Korea; case report	75-year-old woman taking warfarin and aspirin	Abdominal acupuncture; detailed parameters not publicly available	Cecal intramural hematoma after focal or deep injury; right hemicolectomy	Single case report; incomplete needling details; cannot estimate incidence.
Nishimura et al. (2008) [18]	Japan; case report	81-year-old woman receiving limaprost alfadex	Hand or wrist acupuncture; technique incompletely reported	Acute carpal tunnel syndrome from hemorrhage with tendon injury; surgical decompression	Single case report; sparse procedural details; cannot establish population-level risk.
Han et al. (2010) [15]	China; case report	Patients with ischemic strokes and paroxysmal atrial fibrillation receiving oral anticoagulation	Acupuncture during stroke rehabilitation; therapeutic INR reported	Sudden calf intramuscular hematoma; no compartment syndrome; conservative treatment; resolution by 3 months	Single case report; limited publicly available technical details; cannot estimate incidence.
Miller et al. (2012) [8]	United States; retrospective hospital case series and conference report	229 warfarin-treated inpatients; 350 treatments with same-day INR	Routine inpatient acupuncture; points and depth not reported	Blood noted after 51 of 350 treatments (14.6%); 50 events managed with a cotton-tipped swab; no difference by INR above or below 2.3	Conference abstract; no untreated comparator; incomplete acupuncture details.
Kenz et al. (2012) [16]	United Kingdom; case report	82-year-old woman on warfarin for atrial fibrillation; INR 2.4	Community acupuncture for trochanteric bursitis	Large deep buttock and upper-thigh hematoma; hemoglobin fell from 12.1 to 8.7 g/dL; warfarin withheld and vitamin K given	Single case report with clear temporal and anatomical association; unable to estimate incidence.
Kim et al. (2014) [9]	Korea; retrospective chart review	242 patients; 4,891 sessions; warfarin, antiplatelet, and untreated groups	Routine inpatient acupuncture	Micro bleeding: warfarin 4.8%, antiplatelet 0.9%, control 3.0%; no serious or extensive bleeding	Retrospective, non-randomized study with unequal comparison groups and potential residual confounding.
Lee et al. (2018) [11]	Korea; prospective observational study	428 inpatients: 169 exposed and 259 unexposed	Assessment immediately after treatment and before next-day treatment	Mild events in 38.5% exposed versus 44.4% unexposed; RR per session 0.87 (95% CI 0.69-1.10); needle thickness was the only independent predictor	Nonrandomized inpatient cohort; outcomes were predominantly mild, and assessor blinding was unclear.
Kwon et al. (2018) [10]	Korea; retrospective chart review	316 patients; 10,177 sessions: direct oral anticoagulants 1,076, antiplatelet 4,574, control 4,527	0.25-mm needles, 10-20 mm depth, about 20 minutes; immediate checklist	Micro bleeding: direct oral anticoagulant 3.9%, antiplatelet 5.6%, control 5.1% (p = .084); no massive hemorrhage	Limited number of direct oral anticoagulant users; exclusion of patients with high-risk laboratory findings may reduce generalizability.
Hsieh et al. (2023) [12]	Taiwan; national claims-based case-control study	821,946 participants; 13,447,563 sessions; 14-day follow-up	Claims-defined acupuncture exposure	Minor bleeding 8.31 per 10,000 needles; major bleeding 4.26 per 100,000. Anticoagulants: minor aOR 1.15 (95% CI 1.03-1.28), major aOR 1.18 (95% CI 0.80-1.75). Antiplatelets were not significant	Claims-based study with possible residual confounding, diagnostic coding limitations and uncertain causal attribution.

3.3 Routine minor bleeding and bruising

Across clinical studies, the most frequent bleeding-related finding was a small blood spot or brief episode of microbleeding after needle removal. Blood was observed after 51 of 350 acupuncture treatments administered to hospitalized patients receiving warfarin. Nearly all of these events were managed by applying pressure with a cotton-tipped swab, and the frequency of bleeding did not differ significantly between patients with higher and lower international normalized ratio values [8].

No serious or extensive bleeding was reported across 4,891 acupuncture sessions in a retrospective chart review. Microbleeding occurred in 4.8% of sessions involving patients receiving warfarin, 0.9% of sessions involving patients receiving antiplatelet medication, and 3.0% of control sessions [9]. Similarly, brief bleeding that stopped within 30 seconds occurred in 3.9% of sessions involving direct oral anticoagulants, 5.6% of sessions involving antiplatelet drugs, and 5.1% of control sessions, with no statistically significant difference between the groups [10].

A prospective observational study assessed participants immediately after acupuncture and again before treatment on the following day. Mild bleeding-related events were observed in 38.5% of patients receiving anticoagulant or antiplatelet therapy and in 44.4% of unexposed patients. The relative risk of bleeding was not increased when the analyses were conducted using either treatment sessions or individual needle insertions as the denominator. Needle thickness, rather than exposure to anticoagulant or antiplatelet medication, was the only independent predictor of bleeding-related adverse events identified in the multivariable analysis [11].

3.4 Major or clinically important bleeding

Major bleeding was uncommon in the comparative evidence. No episodes of massive hemorrhage were reported across the 10,177 acupuncture sessions included in the three-group cohort, including 1,076 sessions involving patients receiving direct oral anticoagulants [10]. In the Taiwanese database study, the incidence of major bleeding was 4.26 events per 100,000 needles, and the adjusted association between anticoagulant use and major bleeding did not reach statistical significance [12]. However, four case reports described clinically important bleeding events following acupuncture. The key patient and clinical characteristics are summarized in Table 3.

These reports indicate that clinically important bleeding can occur despite therapeutic anticoagulation and may involve deep or anatomically confined structures [13-16]. However, because these were individual case reports, they cannot be used to estimate incidence or establish the population-level risk associated with acupuncture.

3.5 Anticoagulant-specific findings

Small hospital studies did not show a clinically meaningful excess of routine bleeding with warfarin or direct oral anticoagulants. The larger Taiwanese study provided a more cautious signal: anticoagulants were associated with a modest increase in minor bleeding overall, and drug-specific analyses identified increased bleeding associations for warfarin, direct oral anticoagulants, and heparin [12]. The difference between these results is not necessarily contradictory. Immediate needling-site microbleeding may remain similar between groups, while a broad 14-day claims window can capture additional diagnosed bleeding events in a much larger population.

Table 3. Clinically important bleeding events reported after acupuncture in patients receiving antithrombotic therapy

Study	Patient characteristics	Antithrombotic therapy	Acupuncture site	Major complication	Management/outcome
Lee et al., 2005 [14]	75-year-old woman	Warfarin + aspirin	Abdomen	Cecal intramural hematoma	Right hemicolectomy
Nishimura et al., 2008 [13]	81-year-old woman	Limaprost alfadex	Hand/wrist	Hemorrhage causing acute carpal tunnel syndrome with tendon injury	Surgical decompression
Han et al., 2010 [15]	Patient with ischemic stroke and paroxysmal atrial fibrillation; therapeutic INR	Oral anticoagulation	Calf	Intramuscular calf hematoma	Conservative treatment; resolution over approximately 3 months
Kenz et al., 2012 [16]	82-year-old woman with atrial fibrillation; INR 2.4	Warfarin	Buttock/upper thigh	Large deep hematoma; hemoglobin decreased from 12.1 to 8.7 g/dL	Warfarin withheld; vitamin K administered

3.6 Antiplatelet-specific findings

Antiplatelet therapy was not significantly associated with post-acupuncture bleeding in the national claims analysis [12]. In the smaller clinical studies, antiplatelet users did not experience more microbleeding than controls. Nevertheless, clinicians should remain aware that severe local hemorrhage may occur when acupuncture needling injures a vulnerable anatomical structure, even when population-level evidence does not indicate an increased overall risk [13].

3.7 Risk modifiers

The available evidence supports a layered model of bleeding risk rather than a simple rule based only on whether a patient is taking anticoagulant or antiplatelet medication. Liver cirrhosis, diabetes mellitus, and coagulation disorders were identified as factors associated with an increased risk of bleeding after acupuncture [12]. The use of thicker acupuncture needles was also identified as an independent predictor of bleeding-related adverse events [11]. In addition, the serious events described in individual case reports frequently involved deeper tissue injury or needling in anatomically confined or vulnerable regions.

Other factors that may reasonably heighten clinical concern include dual antithrombotic therapy, recent unexplained bleeding, renal or hepatic dysfunction, thrombocytopenia, unstable anticoagulation, and needling at sites where direct compression is difficult. However, these variables were not assessed consistently across the available studies, and the evidence is therefore insufficient to support the development of a validated clinical risk-scoring system. These proposed modifiers should be regarded as clinically plausible considerations rather than validated predictors because they were not measured consistently across the included studies. The comparative evidence provided reasonable reassurance that most immediately observed bleeding events were mild and self-limited. However, certainty regarding the frequency of major bleeding remained limited because serious events were rare, the comparative studies were observational, and the case reports could not provide incidence estimates.

3.8 Methodological considerations

Table 4. Methodological considerations for the included reports

Study	Key strengths	Main limitations	Overall interpretation
Miller et al. (2012) [8]	Clear warfarin exposure and same-day INR; treatment-level count	Conference report, no untreated comparator, limited acupuncture detail	Useful for assessing immediate microbleeding but limited by abstract-level reporting and lack of a comparator.
Kim et al. (2014) [9]	Medication-defined groups and large session count	Retrospective, unequal groups, possible practitioner caution and unmeasured confounding	Provides comparative session-level evidence, although residual confounding remains likely.
Lee et al. (2018) [11]	Prospective two-time-point assessment; exposed comparator; adjusted analysis	Nonrandom allocation, inpatient setting, outcomes mostly mild	Most informative prospective clinical comparison, but non-randomized.
Kwon et al. (2018) [10]	Defined direct oral anticoagulant and antiplatelet groups; standardized checklist	Only 28 direct oral anticoagulant patients; practitioners knew medication; high-risk laboratory values excluded	Provides direct evidence of oral anticoagulant use, but the exposed sample size was small.
Hsieh et al. (2023) [12]	National-scale data, very large denominator, adjusted analyses	Claims coding, residual confounding, uncertain causal attribution, broad 14-day window	Largest and most precise study, although causal attribution was indirect.
Lee et al. (2005) [14]	Medication exposure and operative confirmation	Single case, limited technique detail, cannot estimate incidence	Rare internal injury signal
Nishimura et al. (2008) [13]	Surgical confirmation and plausible anatomy	Single case and sparse technique reporting	Rare neurovascular compartment signal
Han et al. (2010) [15]	Therapeutic INR, temporal sequence, conservative management and 3-month follow-up	Single case; full technical details limited in public material	Rare intramuscular hematoma signal
Kenz et al. (2012) [16]	Clear timeline, imaging, INR and hemoglobin change	Single case; needling details and practitioner factors incomplete	Supports the plausibility of severe deep hematoma but cannot provide an incidence estimate.

DISCUSSION

This updated review provides a cautiously reassuring assessment of the bleeding safety of acupuncture in patients receiving anticoagulant or antiplatelet therapy. In routine clinical studies, bleeding was generally absent or limited to brief, self-limited microbleeding, and comparative studies did not demonstrate a consistent increase in immediate bleeding among patients receiving antithrombotic therapy. The largest real-world study, involving 13,447,563 acupuncture sessions, identified a modest association between anticoagulant use and minor bleeding but no statistically significant association with major bleeding [10–12] .

These findings are broadly consistent with the systematic review by McCulloch et al., which concluded that appropriately performed acupuncture was generally safe in patients receiving anticoagulant therapy. The present evidence extends previous findings by including studies involving direct oral anticoagulants and prospective comparative assessment of patients receiving anticoagulant or antiplatelet therapy. However, the reported serious bleeding events demonstrate that clinically important complications remain possible, particularly when deep needling involves anatomically vulnerable or confined structures [13–17].

The evidence base for this review was small and heterogeneous, consisting predominantly of observational studies and case reports, with differences in study designs, exposure definitions, denominators, outcome definitions, and follow-up periods. Most comparative studies were nonrandomized, while claims-based data provide limited information on causal attribution. The review relied on publicly accessible sources and did not include subscription-only databases such as Embase, potentially resulting in access and publication bias. Additionally, this was not prospectively registered.

Clinically, anticoagulant or antiplatelet therapy should not automatically exclude patients from acupuncture; however, treatment should be individualized according to medication exposure, comorbidities, coagulation status, needle depth, anatomical location, and the ability to apply compression and monitor the treated site. Antithrombotic therapy should not be interrupted solely to facilitate acupuncture without consultation with the prescribing clinician. Future studies should use prospective multicentre designs with standardized definitions of bleeding and systematic recording of antithrombotic medication, coagulation parameters, needle characteristics, anatomical site, insertion depth, and bleeding outcomes.

CONCLUSION

Acupuncture appears to have a low risk of major bleeding in patients receiving anticoagulant or antiplatelet therapy when performed with appropriate attention to needle depth, anatomical site, and individual bleeding risk. Antithrombotic therapy should not be discontinued solely to facilitate acupuncture without consultation with the prescribing clinician.

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